AMENDMENT AND RESPONSE UNDER 37 CFR § 1.111

Serial Number: 10/612,281

Filing Date: June 30, 2003

Title: BOND FINGER ON VIA SUBSTRATE, PROCESS OF MAKING SAME, PACKAGE MADE THEREBY, AND METHOD OF

ASSEMBLING SAME

Assignee: Intel Corporation

IN THE CLAIMS

Please amend the claims as follows:

- 1. (Previously Presented) An article comprising:
 - a wire-bonding mounting substrate including a first surface and a second surface;

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- a first wire-bond pad disposed upon the first surface; and
- a first via in the wire-bonding mounting substrate, wherein the first via is in electrical contact with the first wire-bond pad, and wherein the first via is disposed symmetrically and directly below the first wire-bond pad.
- 2. (Previously Presented) An article comprising:
 - a wire-bonding mounting substrate including a first surface and a second surface;
 - a first wire-bond pad disposed upon the first surface; and
- a first via in the wire-bonding mounting substrate, wherein the first via is in electrical contact with the first wire-bond pad, and wherein the first via is disposed directly below the first wire-bond pad, wherein the wire-bonding mounting substrate includes a first edge, the article further including:
 - a second wire-bond pad disposed upon the first surface;
- a second via in the wire-bonding mounting substrate, wherein the second via is in electrical contact with the second wire-bond pad, and wherein the second via is disposed directly below the second wire-bond pad; and

wherein the first via and the second via are staggered with respect to the first edge of the wire-bonding mounting substrate.

- 3. (Original) The article of claim 1, wherein the via includes a liner that is electrically conductive.
- 4. (Original) The article of claim 1, further including: an interconnect filling the via.

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5. (Original) The article of claim 1, wherein the via includes a liner, further including:

an interconnect filling the via.

- 6. (Original) The article of claim 1, wherein the wire-bond pad includes a first layer and a second layer, wherein at least one of the first layer and the second layer is selected from a precious metal, a precious metal alloy, silver, gold, platinum, nickel, palladium, platinum, cobalt, rhodium, iridium, and combinations thereof.
- 7. (Currently Amended) The article of claim 1, wherein the wire-bond pad includes a first layer and a second layer, and wherein the second layer is one of identical material to the first layer, or at least one of a more noble, or a softer metal than the first layer 1317.
- 8. (Previously Presented) A package comprising:
 - a wire-bonding mounting substrate including a first surface and a second surface;
 - a first wire-bond pad disposed upon the first surface;
- a first via in the wire-bonding mounting substrate, wherein the first via is in electrical contact with the first wire-bond pad, and wherein the first via is disposed symmetrically and directly below the first wire-bond pad;
 - a die disposed on the first surface; and
 - a first wire bond that couples the die to the first wire-bond pad.
- 9. (Original) The package of claim 8, further including:
 - a second wire-bond pad disposed upon the first surface;
- a second via in the wire-bonding mounting substrate, wherein the second via is in electrical contact with the second wire-bond pad, and wherein the second via is disposed directly below the second wire-bond pad.

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10. (Original) The package of claim 8 further including:

a second wire-bond pad disposed upon the first surface;

a second via in the wire-bonding mounting substrate, wherein the second via is in electrical contact with the second wire-bond pad, and wherein the second via is disposed directly below the second wire-bond pad;

a second bond wire that couples the die to the second wire-bond pad; and wherein the respective lengths of the first bond wire and the second bond wire are adjusted so as to tune the package.

- 11. (Original) The package of claim 8, further including: a first bump coupled to the first via.
- 12. (Original) The package of claim 8, further including: a first bump coupled to the first via; and a first trace that makes an electrical contact to the first bump.
- 13. (Original) The package of claim 8, further including: a first bump coupled to the first via; and a larger substrate coupled to the first bump.
- 14. (Original) The package of claim 8, wherein the first wire-bond pad is part of a plurality of wire-bond pads, and wherein each wire-bond pad is directly above a corresponding via from a plurality of vias.
- 15. (Original) The package of claim 8, wherein the first wire-bond pad is part of a plurality of wire-bond pads, wherein each wire-bond pad is directly above a corresponding via from a plurality of vias, and wherein each via is coupled to a bump.
- 16. (Original) The package of claim 8, wherein the first wire-bond pad is part of a plurality of wire-bond pads, wherein each wire-bond pad is directly above a

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corresponding via from a plurality of vias, wherein each via is coupled to a bump, and

wherein each bump is directly below a corresponding via.

17. (Previously Presented) A process comprising:

forming a first via in a wire-bonding mounting substrate, wherein the wire-bonding mounting substrate includes a first surface and a second surface, and wherein forming proceeds from the second surface toward the first surface; and patterning a first wire-bond pad symmetrically and directly over the first via.

- 18. (Original) The process of claim 17, wherein forming ceases upon contact with the first wire-bond pad.
- 19. (Original) The process of claim 17, further including: forming a via liner in the first via.
- 20. (Original) The process of claim 17, further including: filling the first via with an interconnect.
- 21. (Original) The process of claim 17, wherein forming the first via precedes patterning the first wire-bond pad.
- 22. (Original) The process of claim 17, further including: filling the first via with an interconnect; coupling the first via to a first bump.
- 23. (Original) The process of claim 17, further including: coupling the first wire-bond pad to a first bump.
- 24. (Original) A method comprising:

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forming a first via in a wire-bonding mounting substrate, wherein the wire-bonding mounting substrate includes a first surface and a second surface, and wherein forming proceeds from the second surface toward the first surface; patterning a first wire-bond pad directly over the first via; and coupling a die to the first wire-bond pad.

- 25. (Original) The method of claim 24, further including: forming a second via in the wire-bonding mounting substrate; patterning a second wire-bond pad directly over the second via; and coupling the die to the second wire-bond pad.
- 26. (Original) The method of claim 24, further including: filling the first via with an interconnect.
- 27. (Original) The method of claim 24, further including: filling the first via with an interconnect; and coupling the first via to a first bump.
- 28. (Currently Amended) A computing system comprising:
 a wire-bonding mounting substrate including a first surface and a second surface;
 a first wire-bond pad disposed upon the first surface;
- a first via in the wire-bonding mounting substrate, wherein the first via is in electrical contact with the first wire-bond pad, and wherein the first via is disposed symmetrically and directly below the first wire-bond pad;

a die disposed on the first surface; and dynamic random-access memory data storage coupled to the die.

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(Original) The computing system of claim 28, wherein the computing system is 29. disposed in one of a computer, a wireless communicator, a hand-held device, an automobile, a locomotive, an aircraft, a watercraft, and a spacecraft.

30. (Original) The computing system of claim 28, wherein the die is selected from a data storage device, a digital signal processor, a micro controller, an application specific integrated circuit, and a microprocessor.